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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/743,935	12/22/2003	Mark Greg Steele	STL 3316	9004

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SEAGATE TECHNOLOGY LLC
INTELLECTUAL PROPERTY DEPARTMENT
920 DISC DRIVE, MS/SV15B1
SCOTTS VALLEY, CA 95066-4544

EXAMINER	
SMITH, NICHOLAS A	

ART UNIT	PAPER NUMBER
1742	

DATE MAILED: 07/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/743,935	STEELE ET AL.	
	Examiner	Art Unit	
	Nicholas A. Smith	1742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 December 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *4/20/04, 10/6/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Status of Claims

Claims 1-20 remain for examination.

Means-Plus-Function Language

Instant claims 18-20 contain the following terms written in means-plus-function format, and have been interpreted as follows:

1. "means for applying a negative pressure to a plenum to produce an airflow through the plenum" (claim 18) is in proper means-plus-function format and is defined in the specification at page 6, paragraph [0011].
2. "means for loading the workpiece onto a workpiece surface to couple the workpiece to a proximal end of the plenum" (claim 18) is in proper means-plus-function format and is defined in the specification at page 8, paragraph [0018].
3. "means for forming a seal between the workpiece and the workpiece surface to produce a pressure drop across the workpiece" (claim 18) is in proper means-plus-function format and is defined in the specification at page 8, paragraph [0018].
4. "means for applying a positive pressure to the plenum" (claim 18) is in proper means-plus-function format and is defined in the specification at page 8-9, paragraph [0019].
5. "means for lifting the workpiece off of the workpiece surface" (claim 18) is in proper means-plus-function format and is defined in the specification at page 8-9, paragraph [0019].

6. "means for providing a conductive electrolyte to a machining gap to impose a pattern on the workpiece" (claim 19) is in proper means-plus-function format and is defined in the specification at page 7-8, paragraph [0016].
7. "means for coupling the workpiece to an ejector pin." (claim 20) is in proper means-plus-function format and is defined in the specification at page 9, paragraph [0020].

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3, 9, 11-16 and 18-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Dordi et al. (US Patent 6,416,647).

Dordi et al. anticipates the claimed system for holding and releasing a workpiece (Figure 1 and abstract) comprising a workpiece holder (Figure 5 (**204**)) has a workpiece surface (Figure 5 (**206**)) configured to couple to a negative pressure being applied to the system to provide a seal between the workpiece and the workpiece surface (col. 6, lines 24-47), a plenum (Figure 5, volume below (**206**) and above (**106**)) disposed within the workpiece holder and a piston (**327**) configured to move upward in the plenum towards the workpiece and to lift off the workpiece in response to a positive pressure being applied to the system (Figure 5 (**326**), col. 8, lines 9-29). The phrase "for

electrochemical machining" in the preamble of the instant claim 1, line 1 is considered an intended use limitation and therefore adds no structure to an apparatus claim. See MPEP 2115.

In regards to claim 2, Dordi et al. anticipates an electrode (Figure 2 (**230**)) disposed above the workpiece and has a pattern (Figure 2) with a configuration to provide a conductive electrolyte (Figure 2 (**240**)) with a gap (Figure 4 between (**230**) and (**202**)).

In regards to claim 3, Dordi et al. anticipates a radial locator (Figure 6 (**306**)) capable of radially locating the workpiece on the workpiece surface.

In regards to claim 9, Dordi et al. anticipates a base portion of the piston (Figure 5 (**327**)) and ejector pins (Figure 5 (**324**)) configured to lift the workpiece (**202**) off the workpiece surface (**206**).

In regards to claim 11, Dordi et al. anticipates air passages (Figure 5 (**302**) (**304**) (**312**)) configured to provide a flow path between the plenum (Figure 5, volume below (**206**) and above (**106**)) and a vacuum port (Figure 5 (**318**)).

In regards to claim 12, Dordi et al. anticipates an O-ring (Figure 5 (**298**)) configured to provide a seal between the air passages and the plenum in response to a positive pressure being applied to the system (col. 6, lines 37-47 and col. 7, lines 5-22).

In regards to claims 13-16, the instant claims 13-16 are written as method claims of the instantly claimed apparatus of instant claims 1, 2 and 9 and are anticipated by Dordi et al. for the same reasons as above.

In regards to claim 18, Dordi et al. anticipates the features of claim 18, included in claim 1 as stated for the same reasons above. Dordi et al. also anticipates the means for producing an air flow through the plenum and producing a pressure drop across the workpiece (col. 6, lines 48-67 and col. 7, lines 1-4). The phrase "for electrochemical machining" in instant claim 18, line 1 is considered an intended use limitation and therefore adds no structure to an apparatus claim. See MPEP 2115.

In regards to claim 19-20, Dordi et al. anticipates the features of claims 19-20, included in claims 2 and 9 as stated for the same reasons above.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 4-5, 7-8 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dordi et al. (US Patent 6,416,647) in view of Mori et al. (US Patent 6,743,349).

In regards to claims 4-5 and 17, Dordi et al. does not specifically teach a workpiece surface that provides anodic contact, resists anodic corrosion or a workpiece surface comprised of titanium.

Mori et al. teaches a system that has a workpiece surface that provides anodic contact (col. 16, lines 19-21). It would have been obvious to one of ordinary skill in the

art to apply Mori et al.'s anodic workpiece surface to Dordi et al.'s system because current could be supplied to the workpiece (Mori et al., col. 16, lines 19-21).

Mori et al. teaches a system that includes a workpiece surface that is resistant to anodic corrosion by using noble metals such as titanium and platinum (col. 16, lines 21-23). It would have been obvious to one of ordinary skill in the art to apply Mori et al.'s workpiece surface having anodic corrosion resistance (titanium) to Dordi et al.'s system because a stable workpiece surface prevents impurities from being eluted to the electrolyte (Mori et al., col. 16, lines 36-40).

In regards to claim 7, Dordi et al. does not specifically teach a locating surface to support the workpiece holder.

Mori et al. teaches a system that includes a locating surface (Figure 12 (**214**)) that supports the workpiece holder. It would have been obvious to one of ordinary skill in the art to apply Mori et al.'s locating surface to Dordi et al.'s system because it would allow the workpiece holder (**230**) to be moveable and having degree of freedom in the directions of XYθ (Mori et al., col. 16, lines 9-19).

In regards to claim 8, Dordi et al. in view of Mori et al. does not specifically teach a degree of parallelism of 1 micron between workpiece surface and a locating surface. Mori et al. teaches that his device is for electrochemical machining of semiconductor materials (col. 1, lines 7-13) wherein the machining can be controlled on the atomic level (col. 1, lines 44-48). Since the atomic level is less than the micron scale and the locating surface (Figure 12 (**214**)) with respect to the workpiece surface (**230**) is the control operation used in machining (see above), it is the examiner's position that a

degree of parallelism of less than a micron is inherent to the prior art and therefore the instant claim is taught.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dordi et al. in view of Herchen (US Patent 5,870,271).

Dordi et al. does not specifically teach a workpiece surface having a finish with a roughness average of .05 to .1 microns.

Herchen teaches a workpiece surface (**80**) having a finish with a roughness average of less than a micron. It would have been obvious to one of ordinary skill in the art to apply Herchen's workpiece surface having a roughness average of less than a micron to Dordi et al.'s system because it would allow for efficient thermal contact between the workpiece surface and the workpiece (Herchen, col. 12, lines 17-20).

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dordi et al. in view of Jenkins et al. (US Patent 5,556,327).

Dordi et al. does not specifically teach a magnet capable of removably coupling the workpiece to the ejector pin.

Jenkins et al. teach a magnet capable of removably coupling a workpiece to an ejector pin (abstract). It would have been obvious to one of ordinary skill in the art to apply Jenkins et al.'s magnetic coupling to Dordi et al.'s system because it would allow the application of force to the workpiece in order to move the workpiece (Jenkins et al., abstract).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nicholas A. Smith whose telephone number is (571)-272-8760. The examiner can normally be reached on 8:30 AM to 5:00 PM, Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571)-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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ROY KING
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700